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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/265,493	03/09/1999	DAVID C. TANNENBAUM	MSFT-1167	4578

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EXAMINER
CHUNG, DANIEL J

ART UNIT	PAPER NUMBER
2672	

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DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4-19-04, 6-4-04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claims 1-20 are presented for examination. This office action is in response to

the amendment filed on 4-19-2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lathrop et al (5,097,427) in view of Lauzon (5,977,982), and further in view of Peercy et

al (5,710,876).

Regarding claim 1, Lathrop et al discloses that the claimed feature of a method

for applying texture mapping in per-pixel operations (See Abstract, Fig 1, col 2 line 60-

col 4 line 25), the method comprising: receiving a plurality of parameters that are used

to define a pixel value at a pixel in a primitive (See Abstract, Fig 1, col 2 line 60-col 4

line 25); selecting at least one parameter (i.e. illumination values) from the plurality of

parameters (See Abstract, Fig 1, col 2 line 60-col 4 line 25, col 4 line 50-col 5 line 56),

[substituting a texture value from a texture map in place of a values produced from an

algorithm that uses the selected at least one parameter to determine a pixel value;]

determining a texture value for each of the selected parameters by accessing a set of

textures, the texture value for the selected parameters varying over the primitive (See

Abstract, Fig 1, col 2 line 60-col 4 line 25, col 4 line 50-col 5 line 56); determining

(Combining Function in Fig 1) the pixel value by using the unselected parameters and

the texture values over the primitive, wherein the set of unselected parameters are not

texture values and the texture values are associated with the selected parameters. (See

Abstract, Fig 1, col 2 line 60-col 4 line 25, col 4 line 50-col 5 line 56)

Lathrop et al does not specifically disclose that "determining the pixel value by

using the unselected parameters with constant values and the selected parameters with

varying texture values". However, Lauzon discloses such claimed feature of invention.

["Specifically...rendering engine 10 can be arranged in terms of components

["unselected parameters" in recited claims] which are constant, i.e.-do not change as a

selected texture 50 is modified, and components ["selected parameters" in recited

claims] which can change as a selected texture 50 is modified..." (See col 5 line 3-13,

Also See Abstract line 6-16, col 2 line 17-col 4 line 6) It would have been obvious to

one skilled in the art to incorporate the teaching of Lauzon into the teaching of Lathrop

et al, in order to provide "reduced computational requirements and real time rendering in

many circumstances" (See Abstract line 16-20 in Lauzon), as such improvement is also

advantageously desirable in the teaching of Lathrop et al for providing a fast image

processing by eliminating the unnecessary computation for unchanged scene or images

or to reducing the rendering time by eliminating the calculation for the contributions of

lights in the scene during rendering.

Also, Lathrop et al does not explicitly discloses that "substituting a texture map

value for a value produced from an algorithm that uses the parameter", as recited claim

1. however, such limitation is shown in the teaching of Peercy et al. [i.e. "the texture

map may comprise a surface matrix at each texel, and can be used as a substitute for

the surface matrix or alternately it can be used for texturing the set of colorimetric

sensor values calculated from the surface matrix", "selected texels are used either to

substitute for or to scale one or more of the surface's material properties, such as its

diffuse color components"] (See Abstract line 19-24, col 17 line 42-50) it would have

been obvious to one skilled in the art to incorporate the teaching of Peercy et al into the

teaching of Lathrop et al, in order to "provide a practical color rendering system for

computer graphics that has sufficient speed for interactive graphics, and more

accurately represents the objects in an image on a computer screen" (See col 3 line 16-

20 in Peercy et al), as such improvement is also advantageously desirable in the

teaching of Lathrop et al for generating properly represented pixel values in the

processing of texture mapping.

Regarding claim 2, Lathrop et al discloses that displaying the generated pixel

light value on a display device. (See Abstract, Fig 1, col 2 line 60-col 4 line 25)

Regarding claim 3, Lathrop et al discloses that the plurality of parameters includes per-primitive parameters, which are defined over the entire primitive. (See Abstract, Fig 1, col 2 line 60-col 4 line 25)

Regarding claim 4, Lathrop et al discloses that the primitive is a polygon. (See Abstract, Fig 1, col 2 line 20-35, col 2 line 60-col 4 line 25)

Regarding claim 5, Lathrop et al discloses that the plurality of parameters includes both scalar and vector parameters. (See Abstract, Fig 1, col 1 line 51-62, col 2 line 60-col 4 line 25)

Regarding claim 6, Lathrop et al discloses that the plurality of parameters includes one or more of emission material color, ambient material color, global ambient light color, attenuation factor, ambient light color, diffuse material color, diffuse light color, specular material color, specular light color, a surface normal vector, a specular exponent, an environment map color, and a shadow color. (See Abstract, Fig 1, col 2 line 60-col 4 line 25)

Regarding claim 7, Lathrop et al discloses that the operation of determining the texture value further comprises the operation of:

Receiving texture coordinates for accessing the set of textures (See Abstract, Fig 1, col 2 line 60-col 4 line 25)

Accessing the textures in response to the texture coordinates to generate the texture values. (See Abstract, Fig 1, col 2 line 60-col 4 line 25)

Regarding claim 8, Lathrop et al discloses that the accessed texture includes a plurality of texture elements, the method further comprising the operation of:

Filtering the accessed texture elements of the texture map onto the selected pixel to generate the texture value associated with the pixel (See Abstract, Fig 1, col 2 line 60-col 4 line 25, col 7 line 39-48)

Regarding claim 9, Lathrop et al discloses that a light value is generated for the pixel value by evaluating a lighting equation that is defined in terms of the plurality of parameters. (See Abstract, Fig 1, col 2 line 60-col 4 line 25)

Regarding claim 10, refer to the discussion for the claim 1 hereinabove, Lathrop et al discloses that the claimed feature of a device for generating per-pixel values of pixels in a primitive by using texture parameters, the pixel values of the pixels in the primitive being defined by a plurality of parameters, (See Abstract, Fig 1, col 2 line 60-col 4 line 25) the device comprising: a texture memory ["memory"] for storing a set of texture maps (See Abstract line 1); a texture unit [4] for receiving texture coordinates for accessing a set of selected texture maps in the texture memory, the set of selected

texture maps being associated with a set of selected parameters selected from among the plurality of parameters that define a pixel value in the primitive, the texture unit generating a texture value associated with the pixel from each of the selected texture maps, wherein the parameters that are not selected from the plurality of parameters define a set of unselected parameters; and a rendering unit for generating the pixel value in response to the texture values of the selected parameters and to the unselected parameters. (See Abstract, Fig 1, col 2 line 60-col 4 line 25, col 4 line 50-col 5 line 56)

Regarding claims 11-14, Claims 11-14 are respectively equivalent to claims 4,6,5 and 9, and thus the rejections to claims 4,6,5 and 9 hereinabove are also respectively applicable to claims 11-14, but applied in view of the rejections to base claim 10.

Regarding claim 15, Claim 15 is the corresponding computer graphics system of claim 1. Thus, the rejection to claim 1 hereinabove is also applicable to claim 15.

Regarding claims 16-20, Claims 16-20 are respectively equivalent to claims 6,5,9,4 and 8, and thus the rejections to claims 6,5,9,4 and 8 hereinabove are also respectively applicable to claims 16-20, but applied in view of the rejections to base claim 15.

Response to Arguments/Amendment

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection. In response to the applicant's argument that the cited references do not discloses "substituting a texture map value for a value produced from an algorithm that uses the parameter". The newly submitted reference (Peercy et al) clearly discloses such limitation. [i.e. "the texture map may comprise a surface matrix at each texel, and can be used as a substitute for the surface matrix or alternately it can be used for texturing the set of colorimetric sensor values calculated from the surface matrix", "selected texels are used either to substitute for or to scale one or more of the surface's material properties, such as its diffuse color components"] (See Abstract line 19-24, col 17 line 42-50) See the rejection hereinabove.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (Central fax)

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Technology Center 2600 Customer Service Office

whose telephone number is (703) 306-0377.

djc
August 19, 2004

MATTHEW LUU
PRIMARY EXAMINER